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REV. 11/97  
For Other Than A Small Entity

Attorney Docket No. UV-3 C2

Applicant(s) : Connie T. Marshall, Thomas R. Lemmons, and  
Donald W. Allison

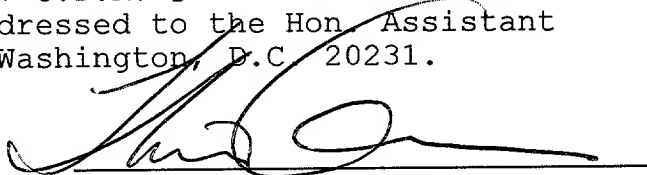
For : VIDEO MIX PROGRAM GUIDE

EXPRESS MAIL CERTIFICATION

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I hereby certify that this transmittal letter and the other papers and fees identified in this transmittal letter as being transmitted herewith are being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 C.F.R. § 1.10 on the date indicated above and are addressed to the Hon. Assistant Commissioner for Patents, Washington, D.C. 20231.

  
THOMAS QUINONES

Hon. Assistant Commissioner  
for Patents  
Washington, D.C. 20231

TRANSMITTAL LETTER FOR UNEXECUTED  
ORIGINAL PATENT APPLICATION

Sir:

Transmitted herewith for filing are the  
[X] specification; [X] claims; [X] abstract; [X] unexecuted  
declaration, for the above-identified patent application.

Also transmitted herewith are:

[X] 6 sheets of:

[ ] Formal drawings.

☒ Informal drawings. Formal drawings will be filed during the pendency of this application.

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from which priority is claimed.

☐ An assignment of the invention to \_\_\_\_\_.

☐ A check in the amount of \$40.00 to cover the recording fee.

☐ Please charge \$40.00 to Deposit Account No. 06-1075 in payment of the recording fee. A duplicate copy of this transmittal letter is transmitted herewith.

☐ An associate power of attorney.

The filing fee has been calculated as shown below:

FOR	NUMBER FILED	NUMBER EXTRA	RATE	FEE
BASIC FEE				\$790.00
TOTAL CLAIMS	1	- 20 = 0	X \$22 =	\$
INDEPENDENT CLAIMS	1	- 3 = 0	X \$82 =	\$
[ ] MULTIPLE DEPENDENT CLAIMS				+ \$270 = \$
TOTAL				<u>\$790.00</u>

[ ] A check in the amount of \$\_\_\_\_\_ in payment of the filing fee is transmitted herewith.

[X] This application is being filed unaccompanied by a filing fee. The appropriate filing fee will be paid in response to a Notice to File Missing Parts, pursuant to 37 C.F.R. § 1.53(d).

[X] Amend the specification by inserting before the first line the sentence: --This is a continuation of application Serial No. 08/599,143, filed February 9, 1996, which is a continuation of application Serial No. 08/234,060, filed April 28, 1994, now U.S. patent 5,502,504.--.



G. Victor Treyz  
Registration No. 36,294  
Attorney for Applicants  
c/o FISH & NEAVE  
1251 Avenue of the Americas  
New York, New York 10020-1104  
Tel.: (212) 596-9000

VIDEO MIX PROGRAM GUIDEBackground of the Invention

This invention relates generally to  
5 interactive video communications and more particularly  
concerns viewer controlled channel programming guide  
displays.

Programming guide information is presently  
displayed to the home TV viewer in a non-interactive  
10 scroll on a single channel dedicated to programming  
guide information.

When the home viewer selects the programming  
guide channel, viewing of the channel previously  
selected is interrupted. While the viewer executes  
15 best judgment to when to make the change, key portions  
of the program on the previously selected channel may  
be missed. This is especially probable in cases of  
live programming. It is also especially irritating to  
the viewers not in possession of the controller.

20 It is, therefore, an object of this invention  
to provide a process and in-home scrolling hardware by  
which a home viewer may interactively control a channel  
programming guide. Another object of this invention is

to provide a process and in-home scrolling hardware in which the scroll can be simultaneously superimposed on and displayed with the programming of any channel accessible to the home viewer. Another object of this invention is to provide a process and in-home scrolling hardware by which a home viewer may control the comparative weight of the programming guide or superimposed signal in relation to the basic programming signal over which it is superimposed.

10 Summary of the Invention

In accordance with the invention, a system interactively controlled by a TV viewer remote control transmitter displays a scroll program guide superimposed on the normal programming displayed on any channel accessible to the viewer's display screen. A tuner receives TV radio frequency or optical transmission signals in a plurality of cable channels and passes a viewer usable signal of any selected one of the channels to a signal combiner. A computer receives any of a plurality of control signals from the TV viewer remote control transmitter. It also controls the tuner to pass the viewer usable signal of any selected channel in response to one of the control signals from the TV viewer remote control transmitter. It also receives and stores a scroll input picture image signal containing local program guide data and generates a scroll output picture image signal consisting of at least a portion of the scroll input picture image signal. The signal combiner combines the viewer usable signal of any selected channel from the

tuner with the output picture image signal from the computer to provide a display signal with the program guide display superimposed over the channel programming display for input to the viewer's display screen. The  
5 computer is responsive to a control signal from the remote to change the weight of the superimposed signal in relation to the base or normal programming signal.

#### Brief Description of the Drawings

Other objects and advantages of the invention  
10 will become apparent upon reading the following detailed description and upon reference to the drawings in which:

FIG. 1 is a block diagram illustrating a preferred embodiment of the hardware of the interactive  
15 scrolling program guide;

FIG. 2 is a flow chart illustrating the basic process and options of the video mix capability of the interactive scrolling program guide;

FIG. 3 is a representation of an interactive  
20 scrolling program guide menu display;

FIG. 4 is a representation of an interactive scrolling program guide display in a video mix mode;

FIG. 5 is a representation of the interactive scrolling program guide display in a solid or one  
25 hundred percent programming guide condition relative to the base signal;

FIG. 6 is a representation of the interactive scrolling program guide display in a ninety percent programming guide condition relative to the base  
30 signal;

FIG. 7 is a representation of the interactive scrolling program guide display in an eighty percent programming guide condition relative to the base signal;

5           FIG. 8 is a representation of the interactive scrolling program guide display in a seventy percent programming guide condition relative to the base signal; and

10           FIG. 9 is a representation of the interactive scrolling program guide display in a sixty percent programming guide condition relative to the base signal.

20           While the invention will be described in connection with a preferred embodiment and process, it will be understood that it is not intended to limit the invention to that embodiment or process. On the contrary, it is intended to cover all alternatives, modifications and equivalents as may be included within the spirit and scope of the invention as defined by the appended claims.

#### Detailed Description of the Invention

Turning first to FIG. 1, the components of the interactive scroll program guide are illustrated. A computer 11 having a command information receiver, preferably an infrared or radio frequency receiver 13, provides a control signal 15 to a tuner 17 and a picture image signal 19 to a digital video board 21. The tuner 17 converts or demodulates radio frequencies or optical transmissions to a signal usable by the viewer to output a signal 23 selected from a plurality

of signals 25 input to the tuner 17 from the cable source (not shown), typically frequency division multiplexed video, audio and data signals transmitted via a coaxial cable, over-the-air radio frequencies or fiber optics. The digital video board 21 converts digital data into a video signal. The tuner output or base programming signal 23 has superimposed thereon a scroll information picture image signal 27 from the digital video board 21 in a genlock signal combiner or overlayer 29. The combined scroll and TV picture signal 31 is then displayed on a video signal display device such as the display screen 33 of the viewer's television. The combiner 29 permits the viewer to select the weight of the scroll information picture signal 27 in relation to the base programming signal 23. The viewer sends commands to the receiver 13 to control the operation of the computer 11 by the use of a remote control transmitter, preferably an infrared or radio frequency transmitter 35. The computer 11 is based on microprocessor and may utilize random access (RAM) and/or read only (ROM) memory. The software necessary to operate the microprocessor may be embedded in the device or downloaded via the cable system to the device.

The above described interactive scroll program guide components operate in response to the control of the computer 11. As shown in FIG. 2, while the home viewer is watching programming presented on his display 33 in response to the tuner 17 feeding any basic program signal 23 from the input selections 25 to the genlock combiner 29, the viewer may opt to



simultaneously view the programming guide scroll  
available to the combiner 29 from the computer 11  
through the digital video board 21. The viewer simply  
presses a predetermined key on the remote 35 to select  
5 the program guide display as is illustrated in FIG. 3.  
As shown in FIG. 3, the program guide nomenclature  
(Prgm Guide) will appear on the screen between arrows  
indicating upward or downward menu access to the  
possible choices in the program guide routine. By use  
10 of the up and down arrows on the controller 35, the  
program guide menu can be manipulated to the "video  
mix" condition, illustrated as step 51 in the routine  
of FIG. 2. The visual appearance of the viewer's  
display 33 in the "video mix" condition is illustrated  
15 in FIG. 4. Upon "user selection of video mix" 51, the  
computer 11 routine inquires as to whether or not there  
has been a key pressed 53 requesting that the weight of  
the program guide signal 27 be changed in relation to  
the basic programming signal 23. If the answer to this  
20 inquiry is "NO", routing proceeds through a path 55 to  
continue the "key pressed" inquiry 53. If the response  
to the "key pressed" inquiry 53 is "YES", the routine  
continues to a "user exit" inquiry 57. If the viewer  
has opted to exit the video mix routine, a "YES"  
25 response to the "user exit" inquiry 57 will result in a  
"return to the previous menu" 59. If, however, the  
response to the "user exit inquiry" 57 is "NO", the  
routine continues to a new mix selection inquiry 61.  
If the response to the "new mix selection" inquiry 61  
30 is "NO", the routine returns via the route 55 to the  
original "key pressed" inquiry 53. If the answer to

the "new mix selection" inquiry 61 is "YES", the routine proceeds through the calculate hardware parameters step" 63 and the "set hardware to new level" step 65, at which point the genlock combiner 29  
5 automatically performs these functions to establish the weight of the program guide signal 27 superimposed by the genlock combiner 29 over the basic programming signal 23. When the hardware is set to its new level 65, the routine continues through the path 55 to the  
10 "key pressed" inquiry 53 to determine whether the viewer has again selected a different percentage of signal mix.

FIGS. 5 through 9 illustrate the solid or one hundred percent video mix, ninety percent video mix,  
15 eighty percent video mix, seventy percent video mix and sixty percent video mix, respectively, the percentage indicating the weight the programming guide signal 27 superimposed on the basic programming signal 23.

If the video mix routine is exited and later  
20 reselected, the weight of the programming guide signal 27 will automatically be the weight last opted by the viewer.

Thus, each individual viewer will be provided with a scroll program guide in which the home viewer  
25 can interactively determine whether the program guide scroll should be displayed and, if so, its weight relative to the basic program data.

Thus, it is apparent that there has been provided, in accordance with the invention, a video mix  
30 program guide that fully satisfies the objects, aims and advantages set forth above. While the invention

has been described in conjunction with specific  
embodiments thereof, it is evident that many  
alternatives, modifications and variations will be  
apparent to those skilled in the art and in light of  
5 the foregoing description. Accordingly, it is intended  
to embrace all such alternatives, modifications and  
variations as fall within the spirit of the appended  
claims.

What is claimed is:

1. A system interactively controlled by a user remote control for displaying a program guide on a display screen, comprising:

circuitry for receiving television signals corresponding to a plurality of television channels and for selecting a corresponding one of the plurality of television channels to display on said display screen;

circuitry for receiving program guide data for the program guide; and

circuitry for displaying the program guide with a perceived transparency on the selected television channel.

Abstract of the Disclosure

A system interactively controlled by a TV viewer remote superimposes portions of a scroll program guide over a basic programming signal for display on the viewer's display screen. A tuner has an input for receiving TV signals in a plurality of cable channels and an output for passing a signal of any selected one of said channels. A computer has an input for receiving any of a plurality of control signals from the TV viewer remote and an output for controlling the tuner to pass the signal of the selected one of the channels in response to one of the plurality of control signals from the TV viewer remote. The computer receives and stores a scroll input picture image signal containing local program guide data and generates a scroll output picture image signal consisting of at least a portion of the scroll input picture image signal. A combiner superimposes output picture image signal over the passed signal to provide a display signal for input to the viewer's display screen. The computer is responsive to control signals from the remote to cause the combiner to change the weight of the output picture image signal in relation to the passed signal.

UV-3 C2

DECLARATION AND POWER OF ATTORNEY

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name;

I believe I am an original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

VIDEO MIX PROGRAM GUIDE

the specification of which

☒ [X] is attached hereto

☐ [ ] was filed on \_\_\_\_\_ as  
Application Serial No. \_\_\_\_\_.

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims.

I do not know and do not believe that the invention was ever patented or described in any printed publication in any country before my or our invention thereof or more than one year prior to this application.

I do not know and do not believe that the invention was in public use or on sale in the United States of America more than one year prior to this application.

I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known by me to be material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, § 119(a)-(d) of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

FI 186822-595 US.

Prior Foreign Application(s)

Priority  
Claimed

<u>(Number)</u>	<u>(Country)</u>	<u>(Filing Date)</u>	<u>[ ] [ ]</u> Yes No
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I hereby claim the benefit under Title 35, United States Code § 119(e) of any United States provisional application(s) listed below.

<u>(Application Serial No.)</u>	<u>(Filing Date)</u>
---------------------------------	----------------------

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known by me to be material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application:

<u>08/599,143</u>	<u>2/9/96</u>	<u>pending</u>
(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)

<u>08/234,060</u>	<u>4/28/94</u>	<u>patented</u>
(Application Serial No.)	(Filing Date)	(Status) (patented, pending, abandoned)

As a named inventor, I hereby appoint the following attorneys or agents to prosecute this application and transact all business in the United States Patent and Trademark Office connected therewith:

<u>Robert C. Morgan, Reg. No. 30,199</u>
<u>Joseph M. Guiliano, Reg. No. 36,539</u>
<u>G. Victor Treyz, Reg. No. 36,294</u>

Send correspondence to: G. Victor Treyz  
FISH & NEAVE  
1251 Avenue of the Americas  
New York, New York 10020-1104

Direct telephone calls to: G. Victor Treyz  
(212) 596-9000

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of first inventor Connie T. Marshall

First Inventor's signature \_\_\_\_\_ Date \_\_\_\_\_

Residence Route 5, Box 298, Muskogee, Oklahoma 74401  
Citizenship United States  
Post Office Address Route 5, Box 298, Muskogee,  
Oklahoma 74401

Full name of second inventor Thomas R. Lemmons

Second Inventor's signature \_\_\_\_\_ Date \_\_\_\_\_

Residence Route 2, Box 332-47, Coweta, Oklahoma 74429  
Citizenship United States  
Post Office Address Route 2, Box 332-47, Coweta,  
Oklahoma 74429



Full name of third inventor Donald W. Allison

Third Inventor's signature \_\_\_\_\_ Date \_\_\_\_\_

Residence 3411 S. 132 E. Avenue, Tulsa, Oklahoma 74134

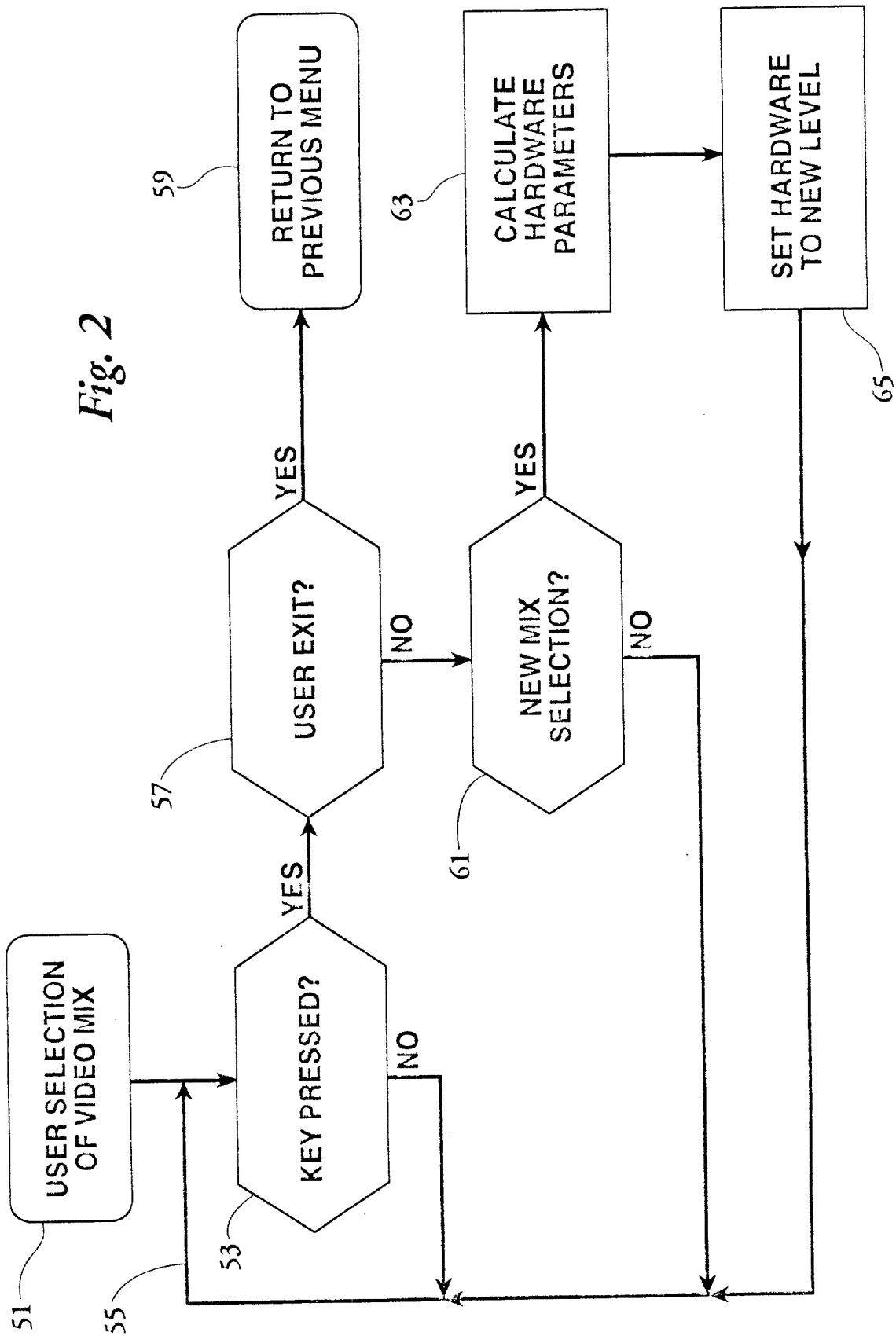
Citizenship United States

Post Office Address 3411 S. 132 E. Avenue, Tulsa,  
Oklahoma 74134

ALLISON DW

Figure 1 consists of 12 subplots arranged in a 6x2 grid, labeled (a) through (l). The subplots show the time evolution of various physical quantities for a 1D Bose gas. The left column (a, c, e, g, i, k) displays the density profile  $n(x,t)$  as a function of position  $x$  for different times  $t$ . The right column (b, d, f, h, j, l) displays the momentum distribution  $n(k,t)$  as a function of momentum  $k$  for the same times  $t$ . The subplots illustrate the development of interference patterns and the spreading of the wave packet over time.





PRZVUZ		Thu Feb. 24 4:30		
Prgm. Guide	Grid	4:00	PM	THU
Feb 24	4:00 PM	4:30 PM		
2 KJRH	CURRENT AFFAIR	EMPTY NEST		
3	UNCLE ZEB (CC)	FEATURES (CC)		
4 DIS	KIDS INCORPORATE	MICKEY MOUSE CLUB		
5 KOKI	ANIMANIACS	BATMAN: THE ANIMATED SER		

Fig. 3

PRZVUZ		Thu Feb. 24 4:30		
Video Mix	Solid	4:00	PM	THU
Feb 24	4:00 PM	4:30 PM		
2 KJRH	CURRENT AFFAIR	EMPTY NEST		
3	UNCLE ZEB (CC)	FEATURES (CC)		
4 DIS	KIDS INCORPORATE	MICKEY MOUSE CLUB		
5 KOKI	ANIMANIACS	BATMAN: THE ANIMATED SER		

Fig. 4

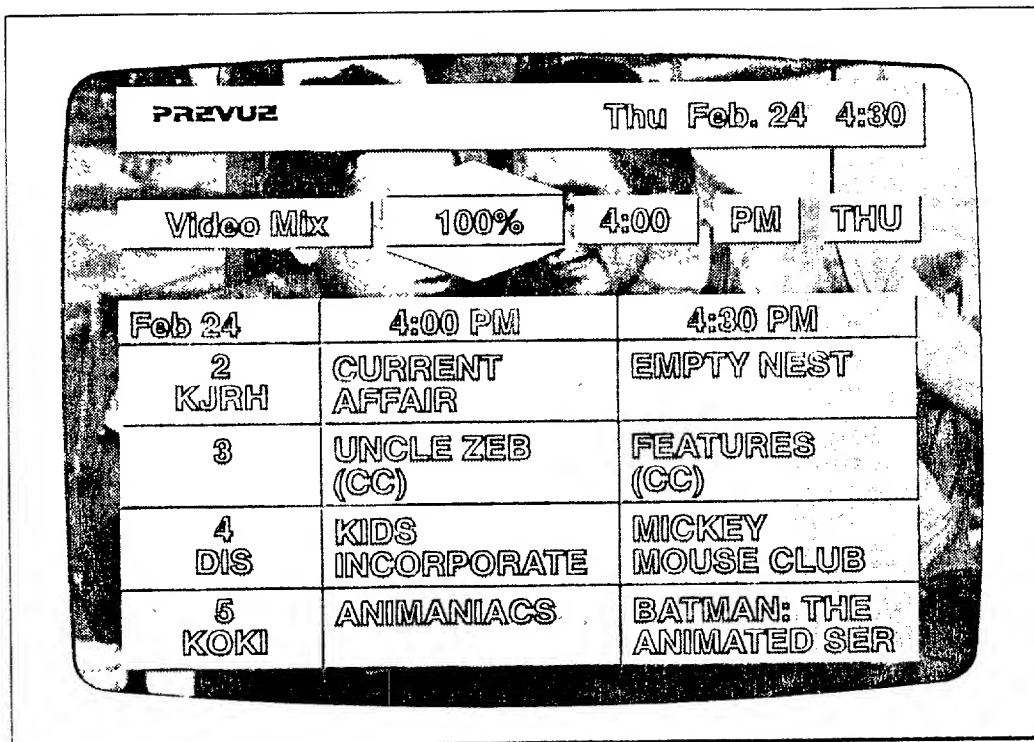


Fig. 5

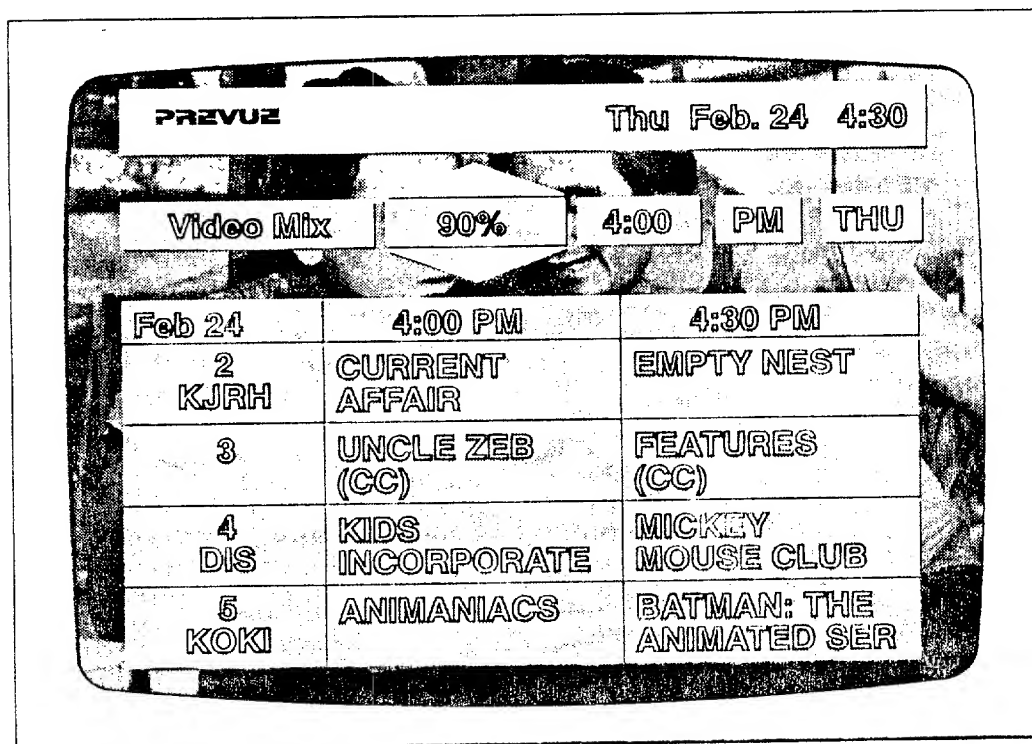


Fig. 6

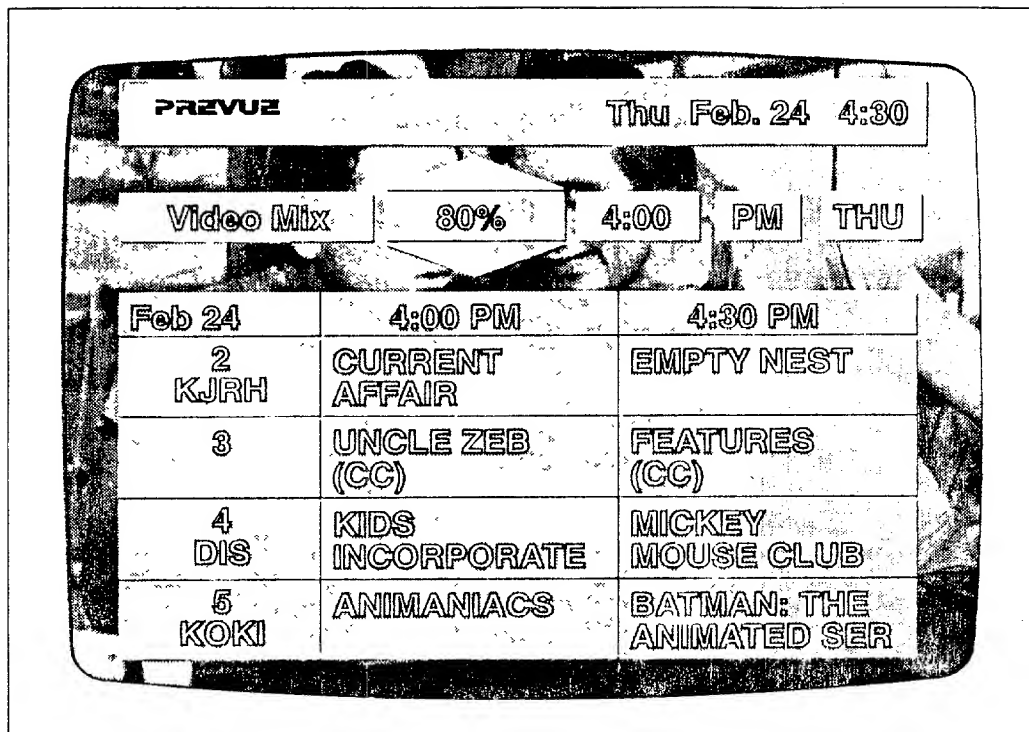


Fig. 7

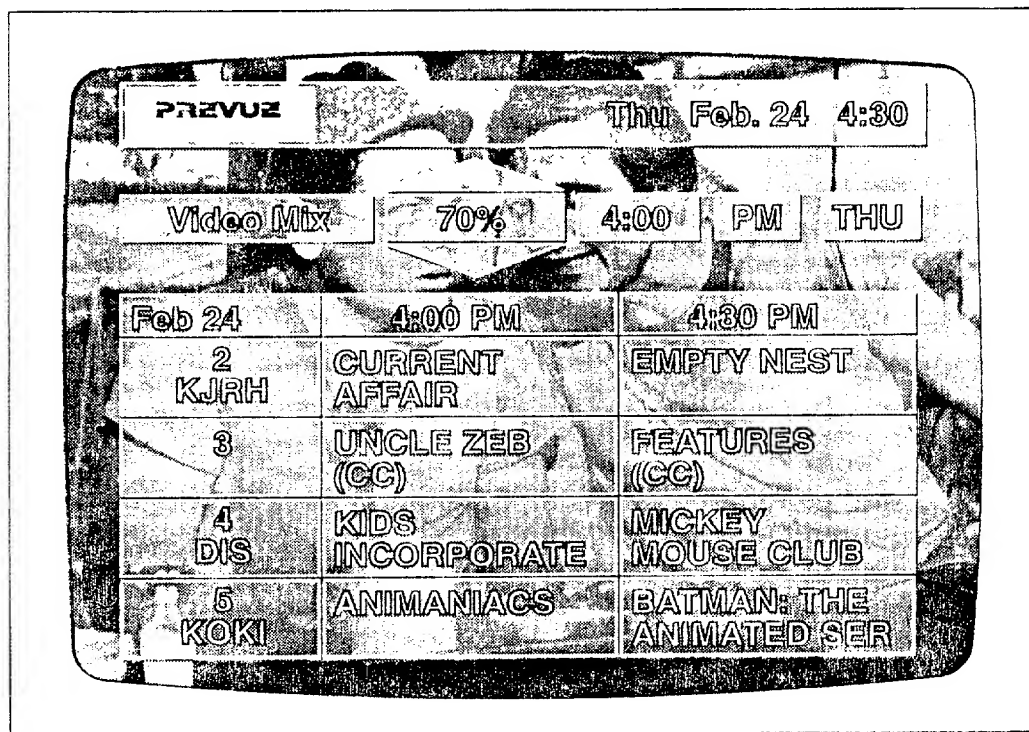


Fig. 8

2025 11 14 14:54:25

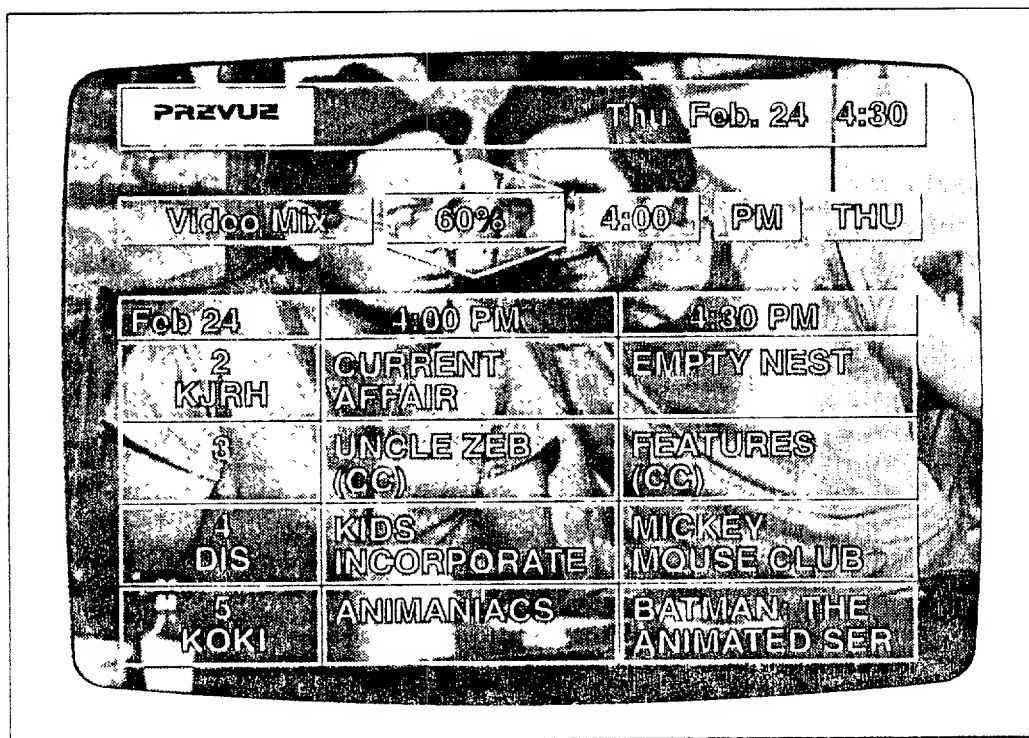


Fig. 9